

# TROPICAL STORM IDA (21W)

Tropical Storm Ida was the second of four tropical cyclones to develop during the month of November. This tropical cyclone presented unique forecast problems for JTWC as it interacted with strong northeasterly low-level flow near the coast of China.

Ida was first detected as a tropical disturbance in the near-equatorial trough on 6 November. Satellite and synoptic data indicated an upper-level anticyclone was present, but only a weak circulation existed near the surface. It was mentioned on the 060600Z Significant Tropical Weather Advisory (ABPW PGIW). By 9 November, the upper-level circulation was located near an area of broad-scale westerly flow approximately 500 nm (926 km) south of Guam. Tropical Storm Herbert (20W) and Typhoon Joe (22W) also developed in this same genesis area during the first half of the month. The excess cyclonic vorticity created by easterly winds south of the

subtropical ridge and westerly winds near the equator enhanced development of the low-level circulation over the next 24-hours. Satellite imagery at 100129Z revealed a partially exposed low-level circulation center (Figure 3-21-1), prompting the issuance of a Tropical Cyclone Formation Alert, valid at 100600Z. Intense convection developed in the northeast quadrant during the evening hours of the 10th. The first warning on Ida, valid at 101800Z, was based on a satellite analysis of 35 kt (18 m/sec) winds using the Dvorak technique. Synoptic data indicated that Tropical Storm Ida lost its upper-level anticyclone, the main synoptic feature of its development, shortly after the first warning was issued. Aircraft reconnaissance flown on the morning of the 11th found a minimum sea-level pressure (MSLP) of 1004 mb, or the equivalent of 21 kt (11 m/sec) on the Atkinson-Holliday wind/pressure relationship.

In retrospect, the first warning may have been

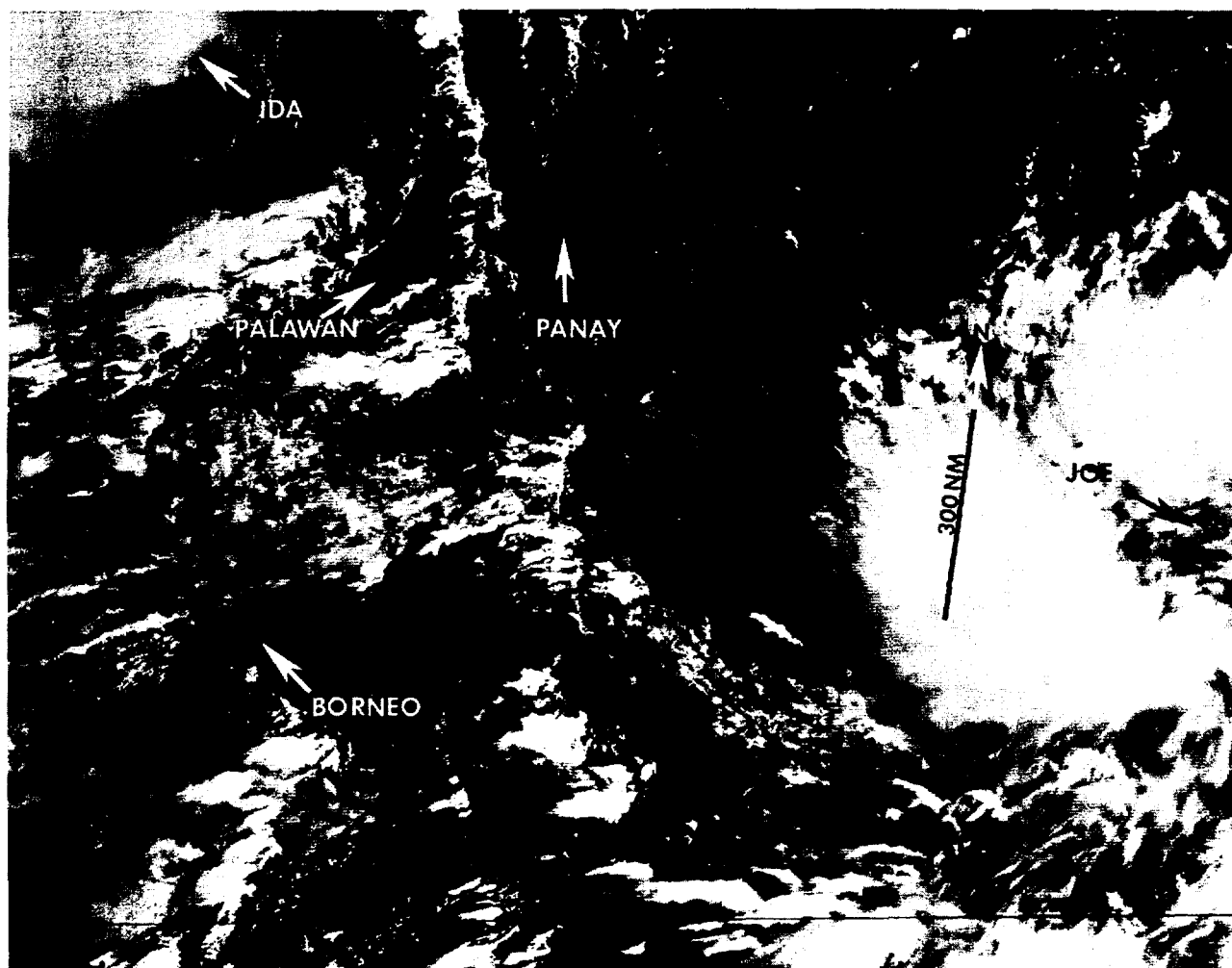


Figure 3-21-1. Tropical Storm Ida in the formative stage of development. Convective bands in the northern and western quadrants describe the upper-level anticyclone outflow that exists over the tropical disturbance (100129Z November DMSP visual imagery).

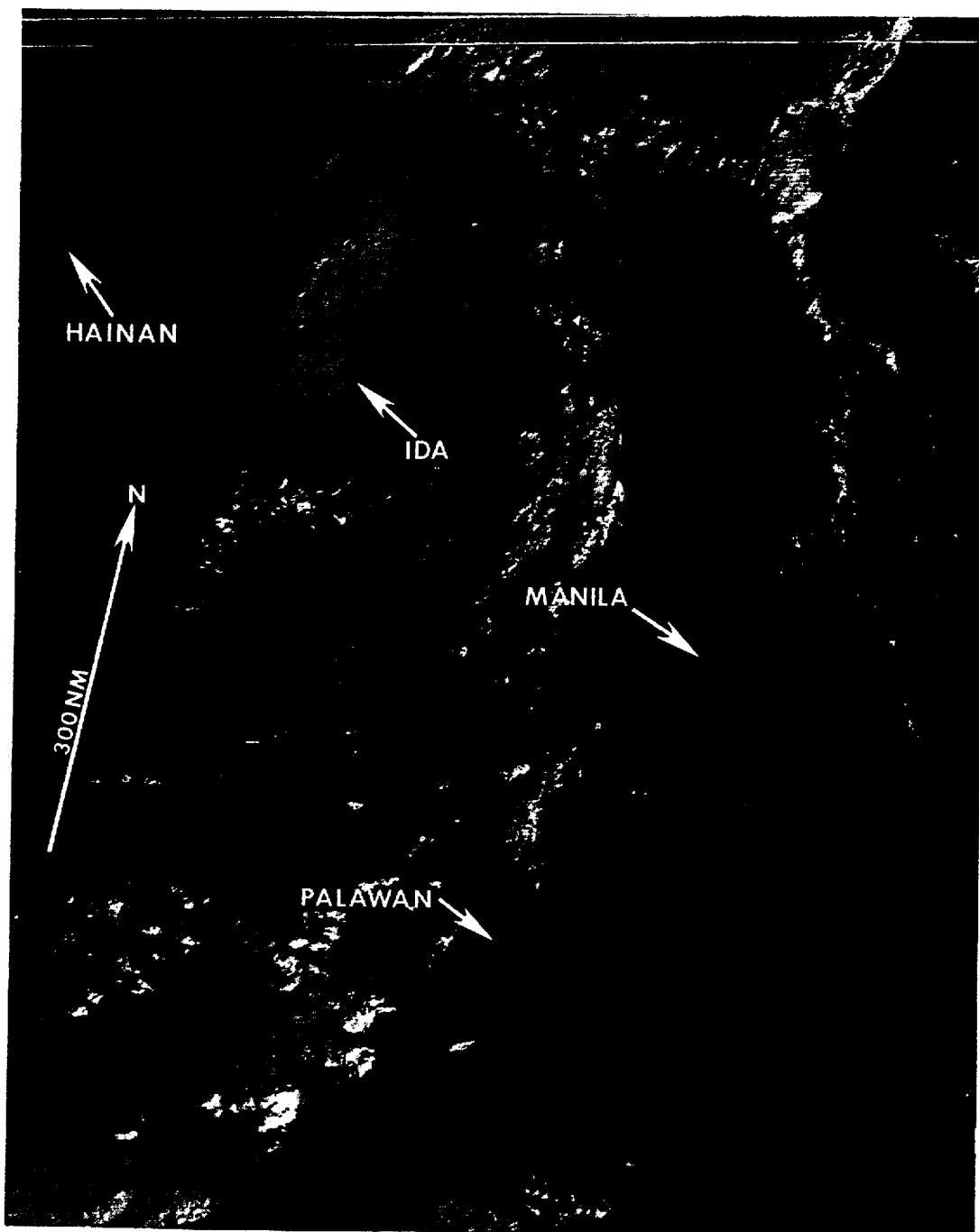
issued prematurely without enough data from synoptic and aircraft reconnaissance data to support an upgrade to tropical storm intensity. The initial warning was based on satellite analysis of a rapidly developing cloud system, which later proved to be inaccurate.

Tropical Storm Ida gradually intensified as it approached the Philippine Islands. Aircraft reconnaissance at 120223Z found a MSLP of 990 mb, or a drop of 14 mb in 24-hours. Ida accelerated as it traversed the Philippines and weakened slightly due to orographic effects. It followed nearly the identical track through the islands as Tropical Storm Herbert (20W) just six days earlier. Ida regained tropical storm intensity shortly after entering the South China Sea and reached its peak intensity of 55 kt (28 m/sec) early on the 15th (see Figure 3-21-2).

At this point Ida was influenced by the northeast monsoon winds off of mainland China. The One-Way Interactive Tropical Cyclone Model (OTCM) indicated the cyclone would continue its northward

track for approximately 24-hours. JTWC forecasts followed this prognostic reasoning. Post-storm analysis indicated that Ida attempted to recurve around the subtropical ridge as the upper-level circulation sheared off to the northeast. However, the low-level circulation drifted eastward in apparent opposition to the surface wind flow. The cold air feeding into Ida caused it to undergo rapid extratropical transition. Also, the cold air behind the mid-level trough just north of Tropical Storm Ida merged with the warm air advected northward by the tropical cyclone, leading to the strengthening of the frontal boundary off the China coast. Ida became embedded in this frontal boundary. The final warning was issued at 160217Z. No loss of life or significant property damage was attributed to Ida.

The low-level eddy, which was the remnant of Ida, separated from the frontal boundary on 17 November and drifted southwestward in the South China Sea with the gradient-level flow. It persisted as a vortex on visual satellite imagery until 19 November.



*Figure 3-21-2. Tropical Storm Ida near maximum intensity in the South China Sea (150129Z November DMSP visual imagery).*